

# CLAIMS

We claim:

1. A method for supplying energy, said method comprising:  
 monitoring a computer's energy consumption;  
 5 supplying external AC to said computer during an off - peak energy - consumption period;  
 using said external AC to charge a battery during said off - peak energy - consumption period;  
 and  
 supplying energy from said battery to said computer during a peak energy - consumption period.

2. The method of Claim 1, wherein said computer is a server.

3. The method of Claim 1, wherein said computer is one of a plurality of computers in a cluster.

4. The method of Claim 3, wherein each of said plurality of computers has its own battery.

5. The method of Claim 1, wherein said computer is one of a plurality of computers mounted in a rack.

6. The method of Claim 5, wherein said plurality of computers share a battery mounted in said rack.

7. The method of Claim 1, further comprising:  
 monitoring the price of said external AC;  
 using said external AC to charge a battery when said price is less than a first price limit; and  
 5 supplying energy from said battery to said computer when said price is greater than a second price limit.

8. The method of Claim 1, further comprising:  
 monitoring the amount of energy stored in said battery; and

using said external AC to charge said battery when said amount of energy is less than a predefined lower limit.

9. A method for energy management, said method comprising:

determining a value for an energy condition affecting at least one computer in a cluster;  
 updating said value continuously;  
 comparing said value with a predefined limit regarding said energy condition;  
 based on said determining, said updating, and said comparing, utilizing at least one energy mode chosen from:  
 storing energy;  
 operating said at least one computer on stored energy;  
 operating said at least one computer on external energy; and  
 standing by.

10. The method of Claim 9, wherein said determining further comprises at least one of:

determining a time of day;  
 determining a price of energy;  
 determining a rate of energy consumption; and  
 determining an amount of stored energy.

11. The method of Claim 9, wherein:

said energy condition is a price for energy; and  
 said utilizing further comprises said operating on stored energy, when said price is greater than said predefined limit.

12. The method of Claim 9, wherein:

said energy condition is a price for energy; and  
 said utilizing further comprises said storing energy, when said price is less than said predefined limit.

13. The method of Claim 9, wherein:

said energy condition is a price for energy; and

said utilizing further comprises said operating on external energy, when said price is less than  
said predefined limit.

14. The method of Claim 9, wherein:

said energy condition is a rate of energy consumption; and

said utilizing further comprises said operating on stored energy, when said rate is greater than  
said predefined limit.

15. The method of Claim 9, wherein:

said energy condition is a rate of energy consumption; and

said utilizing further comprises said storing energy, when said rate is less than said predefined  
limit.

16. The method of Claim 9, wherein:

said energy condition is a rate of energy consumption; and

said utilizing further comprises said operating on external energy, when said rate is less than said  
predefined limit.

17. The method of Claim 9, wherein:

said energy condition is an amount of stored energy; and

said utilizing further comprises said storing energy, when said amount is less than said  
predefined limit.

18. The method of Claim 9, further comprising:

performing said determining,

said updating, and

said comparing,  
for a plurality of energy conditions.

19. A system for energy management, said system comprising:

means for determining a value for an energy condition affecting at least one computer in a cluster;

means for updating said value continuously;

means for comparing said value with a predefined limit regarding said energy condition; and

means, responsive to said means for determining, said means for updating, and said means for comparing, for utilizing at least one energy mode;

means for storing energy; and

means for operating said at least one computer on stored energy.

20. The system of Claim 19, wherein said means for determining further comprises at least one of:

means for determining a time of day;

means for determining a price of energy;

means for determining a rate of energy consumption; and

means for determining an amount of stored energy.

21. The system of Claim 19, wherein:

said means for determining further comprises means for determining a price for energy; and

said means for operating on stored energy is employed when said price is greater than said predefined limit.

22. The system of Claim 19, wherein:

said means for determining further comprises means for determining a price for energy; and

said means for storing energy is employed when said price is less than said predefined limit.

23. The system of Claim 19, wherein:

said means for determining further comprises means for determining a price for energy; and  
said utilizing further comprises means for operating on external energy, when said price is less  
than said predefined limit.

5 24. The system of Claim 19, wherein:

said means for determining further comprises means for determining a rate of energy  
consumption; and

said means for operating on stored energy is employed when said rate is greater than said  
predefined limit.

0 25. The system of Claim 19, wherein:

said means for determining further comprises means for determining a rate of energy  
consumption; and

said means for storing energy is employed when said rate is less than said predefined limit.

5 26. The system of Claim 19, wherein:

said means for determining further comprises means for determining a rate of energy  
consumption; and

said means for utilizing further comprises means for operating on external energy, when said rate  
is less than said predefined limit.

0 27. The system of Claim 19, wherein:

said means for determining further comprises means for determining an amount of stored energy;  
and

said means for storing energy is employed when said amount is less than said predefined limit.

5 28. The system of Claim 19, further wherein:

said means for determining,

said means for updating, and

said means for comparing,

are operative for a plurality of energy conditions.

29. A computer-usable medium having computer-executable instructions for energy management, said computer-executable instructions comprising:

means for determining a value for an energy condition affecting at least one computer in a cluster;

means for updating said value continuously;

means for comparing said value with a predefined limit regarding said energy condition; and

means, responsive to said means for determining, said means for updating, and said means for comparing, for utilizing at least one energy mode;

means for storing energy; and

means for operating said at least one computer on stored energy.

30. The computer-usable medium of Claim 29, wherein said means for determining further comprises at least one of:

means for determining a time of day;

means for determining a price of energy;

means for determining a rate of energy consumption; and

means for determining an amount of stored energy.

31. The computer-usable medium of Claim 29, wherein:

said means for determining further comprises means for determining a price for energy; and said means for operating on stored energy is employed when said price is greater than said predefined limit.

32. The computer-usable medium of Claim 29, wherein:

said means for determining further comprises means for determining a price for energy; and said means for storing energy is employed when said price is less than said predefined limit.

33. The computer-usable medium of Claim 29, wherein:

said means for determining further comprises means for determining a price for energy; and  
said utilizing further comprises means for operating on external energy, when said price is less  
than said predefined limit.

34. The computer-usable medium of Claim 29, wherein:

said means for determining further comprises means for determining a rate of energy  
consumption; and  
said means for operating on stored energy is employed when said rate is greater than said  
predefined limit.

35. The computer-usable medium of Claim 29, wherein:

said means for determining further comprises means for determining a rate of energy  
consumption; and  
said means for storing energy is employed when said rate is less than said predefined limit.

36. The computer-usable medium of Claim 29, wherein:

said means for determining further comprises means for determining a rate of energy  
consumption; and  
said means for utilizing further comprises means for operating on external energy, when said rate  
is less than said predefined limit.

37. The computer-usable medium of Claim 29, wherein:

said means for determining further comprises means for determining an amount of stored energy;  
and  
said means for storing energy is employed when said amount is less than said predefined limit.

38. The computer-usable medium of Claim 29, wherein:

said means for determining,

said means for updating, and

said means for comparing,

are operative for a plurality of energy conditions.

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